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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,280	02/24/2004	Ahmad Waleh	D-95013A1A	3880

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EXAMINER

MARKOFF, ALEXANDER

ART UNIT	PAPER NUMBER
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1792

MAIL DATE	DELIVERY MODE
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06/12/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/786,280	Applicant(s) WALEH ET AL.	
	Examiner Alexander Markoff	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 5,8-10,15-17 and 26-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4m 6, 7, 11-14, 18-25, 29 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Double Patenting

1. The terminal disclaimer filed on 3/3/08 was approved.
2. The double patenting rejection made in the previous Office action has been withdrawn in view of filing the referenced disclaimer.
- 3.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-4, 6, 7, 11-14, 18-25 and 29-30 rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta et al (US Patent No 5,037,506) in view of Mayer et al (US Patent No 3,893,869) and further in view of Nachshon (US Patent No 5,114,834), Engelsberg (Laser-Assisted Cleaning Proves Promising), WO 97/17164, WO 9507152, Engelsberg et al (US Patents 5,643,472 and 5,531,857) and Engelsberg (US Patent No 5,024,968).

Gupta et al teach a method substantially as claimed except for the last laser cleaning step and the use of ultrasonic/megasonic during the solvent treatment.

However, precise cleaning and photoresists removal by lasers was conventional in the art, as evidenced by Nachshon, Engelsberg, Engelsberg et al, WO 97/17164, and WO 9507152.

It would have been obvious to an ordinary artisan at the time the invention was made to use laser processing in the method of Gupta et al after the solvent rinse with reasonable expectation of success in order to more completely remove contamination, because the prior art teaches such step as a conventional and desirable.

The use of ultrasonic/megasonic during liquid treatment of semiconductor wafers was notoriously well-known and conventional in the art. See at least Mayer et al.

It would have been obvious to an ordinary artisan at the time the invention was made to use ultrasonic/megasonic in the method of Gupta et al in order to enhance solvent treatment, because such enhancement was conventional in the industry.

Response to Arguments

8. Applicant's arguments filed 3/3/08 have been fully considered but they are not persuasive.

The applicants alleged that the examiner did not cite any reference related to the step (b) of application of UV radiation to the substrate with photoresist prior to the application of sulfur trioxide.

This is not persuasive because the primary reference teaches application of sulfur trioxide to a photoresist to which UV radiation was applied. See at least column 5, lines 22-32, column 2, lines 39-49 and Description of the Related art.

The applicants also allege that the examiner fail to cite a reference that discloses the post rinse treatment step (e).

This is not persuasive.

First, step (e) is not the post rinsing step, but the step of conducting rinsing step (2), which is admitted as conventional and is disclosed by the prior art.

Second, the examiner cited references to address the post rinsing step (f). The referenced step is a step of laser cleaning, as elected, and was addressed in the rejection.

In response to applicant's argument that the examiner has combined an excessive number of references, reliance on a large number of references in a rejection

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does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991).

Moreover, it is noted that most of the argued references were cited to show the same fact - that laser treatment was known for precise cleaning and photoresist removal.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Moreover, it is noted that the documents cited with respect to laser treatment are directed to removal of photoresists.

The applicants argue that no suggestion in Mayer et al that the ultrasonic/megasonic treatment would be useful in the specific sequence recited by the claims.

This is not persuasive. The teaching of Mayer et al was used to show that it was known in the art to enhance liquid cleaning by application of ultrasonic/megasonic. The examiner's position is that it would have been obvious to an ordinary artisan at the time the invention was made to enhance the liquid cleaning steps of Gupta by application of ultrasonic/megasonic. Such obvious modification of the method of Gupta would meet the claimed limitations.

Moreover, it is noted that the step (d) argued by the applicants is optional.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alexander Markoff
Primary Examiner
Art Unit 1792

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